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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,925	03/08/2001	Peter Veprek	9432-000133	5632
27572	7590	03/08/2004	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C.			VO, HUYEN X	
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BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	

2655

DATE MAILED: 03/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,925

Applicant(s)

VEPREK, PETER

Examiner

Huyen Vo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/8/2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-30 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 3/8/2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 7-18, 20, and 22-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizuno et al. (US Patent No. 6226614).

1. Regarding claim 1, Mizuno et al. disclose a method for modifying synthesized speech, the method including the steps of:

generating synthesized speech based on textual input and a plurality of run-time control parameter values (col. 8, ln. 16-52 or referring to figures 2 and 3);

generating real-time data based on an input signal, the input signal characterizing an intelligibility of the speech with regard to a listener (col. 8, ln. 26-39);
and

modifying one or more of the run-time control parameter values based on the real-time data such that the intelligibility of the speech increases (col. 8, ln. 53 to col. 9, ln. 54 or referring to figure 3).

2. Regarding claim 22, Mizuno et al. disclose a method for modifying one or more speech synthesizer run-time control parameters, the method comprising the steps of:
 - receiving the real-time data (col. 8 ln. 53 to col. 9, ln. 19);
 - identifying relevant characteristics of the speech based on the real-time data, the relevant characteristics having corresponding run-time control parameters (col. 9, ln. 20-34); and
 - applying adjustment values to parameter values of the control parameters such that the relevant characteristics of the speech change in a desired fashion (col. 9, ln. 20-34).
3. Regarding claim 7, Mizuno et al. further disclose the steps of:
 - receiving the real-time data (col. 8 ln. 53 to col. 9, ln. 19);
 - identifying relevant characteristics of the speech based on the real-time data, the relevant characteristics having corresponding run-time control parameters (col. 9, ln. 20-34); and
 - applying adjustment values to parameter values of the control parameters such that the relevant characteristics of the speech change in a desired fashion (col. 9, ln. 20-34).
4. Regarding claims 8 and 23, Mizuno et al. further disclose the step of changing relevant speaker characteristics of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54).

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5. Regarding claims 9 and 24, Mizuno et al. further disclose the step of changing relevant voice characteristics of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54).

6. Regarding claim 10, Mizuno et al. further disclose that the step of changing characteristics is selected from the group consisting essentially of: speech rate, pitch, volume, parametric equalization, formant frequencies and bandwidths, glottal sources, speech power spectrum tilt, gender, age, and identity (col. 7, ln. 38-67 and col. 9, ln. 20-54, these are regarded as prosody information).

7. Regarding claims 11 and 25 Mizuno et al. further disclose the step of changing relevant speaking style characteristics of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54, angry or glad voices are different style characteristics).

8. Regarding claim 12, Mizuno et al. further disclose the step of changing characteristics is selected from the group consisting essentially of: dynamic prosody; and articulation (col. 7, ln. 38-67 and col. 9, ln. 20-54, changing the pitch of words can yield articulating speech).

9. Regarding claims 13 and 26, Mizuno et al. further disclose the step of changing relevant emotion characteristics of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54).

10. Regarding claim 14, Mizuno et al. further disclose the step of changing an urgency characteristic of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54, is considered as prosody information).

11. Regarding claims 15 and 27, Mizuno et al. further disclose the step of changing relevant dialect characteristics of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54, changing the pitch information can produce a different accent and consequently yields dialect characteristics).

12. Regarding claim 16, Mizuno et al. further disclose the step of changing characteristics selected from the group consisting essentially of: pronunciation; and articulation (col. 7, ln. 38-67 and col. 9, ln. 20-54, prosody information).

13. Regarding claims 17 and 28, Mizuno et al. further disclose the step of changing relevant content characteristics of the speech (col. 7, ln. 38-67 and col. 9, ln. 20-54).

14. Regarding claim 18, Mizuno et al. further disclose the step of changing characteristics selected from the group consisting essentially of: repetition; redundancy; and vocabulary (col. 7, ln. 38-67 and col. 9, ln. 20-54, that is the intention characteristics of the speech).

15. Regarding claim 20, Mizuno et al. further disclose the step of generating the real-time data based on listener input (col. 8, ln. 26-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al. (US Patent No. 6226614) in view of Logan et al. (US Patent No. 6199076).

16. Regarding claim 19, Mizuno et al. fail to disclose the step of using polyphonic audio processing to spatially reposition the speech based on the real-time data. However, Logan et al. teach the step of using polyphonic audio processing to spatially reposition the speech based on the real-time data (col. 5, ln. 13-25). The advantage of using the teaching of Logan et al. in Mizuno et al. is to play several sounds at the same time.

Since Mizuno et al. and Logan et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to modify Mizuno et al. by incorporating the teaching of Logan et al. in order to play several sounds at the same time.

17. Regarding claim 21, Mizuno et al. fail to disclose the step of using the synthesized speech in an automotive application. However, Logan et al. teach the step of using the synthesized speech in an automotive application (col. 36, ln. 37-47). The advantage of using the teaching of Logan et al. in Mizuno et al. is to provide audible response to driver to minimize driving distraction.

Since Mizuno et al. and Logan et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mizuno et al. by incorporating the teaching of Logan et al. in order to provide audible response to driver to minimize driving distraction.

Claims 2, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al. (US Patent No. 6226614) in view of Graciotti et al. (US Patent No. 3903302).

18. Regarding to claim 2, Mizuno et al. disclose the step of generating the real-time data (col. 8, ln. 26-39), but fail to specifically disclose that generating the real-time data is based on background noise contained in an environment in which the speech is reproduced. However, Graciotti et al. teach that generating the real-time data is based

on background noise contained in an environment in which the speech is reproduced (col. 4, ln. 16-26). The advantage of using the teaching of Graciotti et al. in Mizuno et al. is to produce a suitable speech signal level to increase intelligibility for listeners.

Since Mizuno et al. and Logan et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mizuno et al. by incorporating the teaching of Graciotti et al. in order to produce a suitable speech signal level to increase intelligibility for listeners.

19. Regarding to claim 29, Mizuno et al. disclose a speech synthesizer adaptation system comprising:

a text-to-speech synthesizer for generating speech based on textual input and a plurality of run-time control parameter values (col. 8, ln. 16-52 or referring to figures 2 and 3) and an adaptation controller operatively coupled to the synthesizer and the audio input system, the adaptation controller for modifying one or more of the run-time control parameter values (col. 17, ln. 55-67 or referring to element 17 of figure 12).

Mizuno et al. fails to specifically disclose an audio input system for generating real-time data based on background noise contained in an environment in which the speech is reproduced and the adaptation controller for modifying one or more of the run-time control parameter values based on the real-time data such that interference between the background noise and the speech is reduced.

However, Graciotti et al. teach an audio input system for generating real-time data based on background noise contained in an environment in which the speech is reproduced (col. 4, ln. 16-26, teaching a method for controlling the volume based on the background noise in the environment which speech is produced) and the adaptation controller for modifying one or more of the run-time control parameter values based on the real-time data such that interference between the background noise and the speech is reduced (col. 4, ln. 16-26, by adjusting the volume of the signal). The advantage of using the teaching of Graciotti et al. in Mizuno et al. is to produce a suitable speech signal level to increase intelligibility for listeners.

Since Mizuno et al. and Logan et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mizuno et al. by incorporating the teaching of Graciotti et al. in order to produce a suitable speech signal level to increase intelligibility for listeners.

20. Regarding to claim 30, the modified Mizuno et al. fail to specifically disclose that the audio input system includes an acoustic-to-electric signal converter. However, it would have been obvious to one of ordinary skill in the art that any microphone has an acoustic-to-electric signal converter in order to acquire speech signal from users.

Claims 3-5, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al. (US Patent No. 6226614) in view of Graciotti et al. (US Patent No. 4903302) and further in view of Goldberg et al. (US Patent No. 5970446).

21. Regarding claim 3, the modified Mizuno et al. fail to disclose the steps of: converting the background noise into an electrical signal; retrieving one or more interference models from a model database; and characterizing the background noise with the real-time data based on the electrical signal and the interference models.

However, Goldberg et al. teach converting the background noise into an electrical signal (col. 4, ln. 5-7, "recording indicates the conversion of sound signal into electrical signal"); retrieving one or more interference models from a model database (col. 3, ln. 54-64); and characterizing the background noise with the real-time data based on the electrical signal and the interference models (col. 4, ln. 1-67). The advantage of using the teaching of Goldberg et al. in the modified Mizuno et al. is to reduce noisy background signal to enhance the recognition accuracy.

Since the modified Mizuno et al. and Goldberg et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Mizuno et al. by incorporating the teaching of Goldberg et al. in order to reduce noisy background signal to enhance the recognition accuracy.

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22. Regarding to claims 4-5, the modified Mizuno et al. fail to specifically disclose the step of performing a time domain and frequency domain analysis on the electrical signal. However, Goldberg et al. further teach different methods of analysis maybe used on the electrical signal (col. 2, ln. 44-47). It would have been obvious to one of ordinary skill in the art that the noise signal can be analyzed by using the time-domain or frequency-domain analysis techniques in order to study characteristics of the recorded noise.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al. (US Patent No. 6226614) in view of Graciotti et al. (US Patent No. 4903302), further in view of Goldberg et al. (US Patent No. 5970446), and further in view of Lazar (US Patent No. 5818389).

23. Regarding claim 6, the modified Mizuno et al. fail to specifically disclose the characterizing step is selected from the group consisting essentially of the steps of: identifying high level interference in the background noise; identifying low level interference in the background noise; identifying momentary interference in the background noise; identifying continuous interference in the background noise; identifying varying interference in the background noise; identifying stationary interference in the background noise; identifying spatial locations of sources of the background noise; identifying potential sources of the background noise; and identifying speech in the background noise.

However, Lazar teaches identifying high level interference in the background noise (col. 9, ln. 32-37); identifying low level interference in the background noise (col. 10, ln. 35-39); identifying momentary interference in the background noise (col. 3, ln. 29-38, varying interference can be considered as momentary interference); identifying varying interference in the background noise (col. 3, ln. 29-38); identifying spatial locations of sources of the background noise (col. 10, ln. 6-9); identifying potential sources of the background noise (col. 5, ln. 30-33 or col. 6, ln. 46-52); and identifying speech in the background noise (col. 9, ln. 1-15). The advantage of using the teaching of Lazar in the modified Mizuno et al. is to identify types of interference so that the system can take appropriate action to produce intelligible sound to listeners.

Since the modified Mizuno et al. and Lazar are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Mizuno et al. by incorporating the teaching of Lazar in order to identify types of interference so that the system can take appropriate action to produce intelligible sound to listeners.

The modified Mizuno et al. still fail to specifically disclose identifying continuous and stationary interferences in the background noise. However, it would have been obvious to one of ordinary skill in the art that if the detected varying interference is not varying, then it is the interference is continuous and stationary.

Conclusion

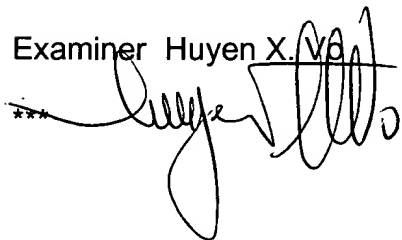
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Silverman (US Patent No. 5751906), Acero (US Patent No. 6253182), and Gasper et al. (US Patent No. 5278943) teach a method for modifying synthesized speech to achieve desired characteristics that are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

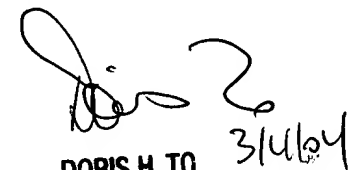
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo



February 24, 2003



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SUPERVISORY PATENT EXAMINER
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